



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,254	12/12/2003	Kun-soo Kim	1793.1005	8678

21171 7590 10/18/2006

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

NGUYEN, LINH THI

ART UNIT	PAPER NUMBER
----------	--------------

2627

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/733,254	KIM ET AL.	
	Examiner	Art Unit	
	Linh T. Nguyen	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 on lines 2 and 6, states "which one of records information" is unclear and indefinite to "which one" of the records information.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 7, 13, 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Mogi et al (JP Publication number 2002100059).

In regards to claims 1, 18 and 22, Mogi et al discloses a compatible optical pickup apparatus and method comprising: a first light module (Fig. 1, element 2) which one of records information on and reproduces information from a first optical recording medium having a first format (Paragraph [0015], lines 1-3), radiates a first beam having a first wavelength (Fig. 1, element h1), and receives the first beam reflected from the first optical recording medium to detect an information signal and an error signal

(Paragraph [0016]-[0019]; It is inherent reflected light from a CD or a DVD enter a optoelectric-tranducer (photodiode) to basically detect an information and error signal); a second light module (Fig. 1, element 3) which one of records information on and reproduces information from a second optical recording medium having a second format different from the first format (Paragraph [0015], lines 3-5), radiates a second beam (Fig. 1, element h2) having a second wavelength different from the first wavelength, and receives the second beam (Fig. 1, element h3) reflected from the second optical recording medium to detect an information signal and an error signal (Fig. 1, element 12 and Paragraph [0018]-[0019]; It is inherent reflected light from a CD or a DVD enter a optoelectric-tranducer (photodiode) to basically detect an information and error signal); a beam splitter (Fig. 1, element 13) disposed along paths of the first and second beams and which changes the paths of the first and second light beams (Fig. 1); an objective lens (Fig. 2, element 16) which condenses the first and second light beams to form a light spot on the first and second optical recording media (Fig. 2, CD and DVD), respectively; and a monitoring photodetector (Fig. 1, element 15) disposed along a third light path, which receives the portions of the first and second light beams from the beam splitter so as to monitor powers of the first and second light modules (Paragraph [0035] and [0047]).

In regards to claim 2, Mogi et al discloses the compatible optical pickup apparatus of claim 1, wherein the first light module (Fig. 1, element 2) comprises: a first light source which emits the first beam (Fig. 1 element 2a); a first photodetector which

Art Unit: 2627

receives the first beam reflected from the first optical recording medium (Fig. 1, element 2b receive first beam reflected light h4) and passed through the beam splitter (Fig. 1, element 13) to detect an information signal and an error signal; and a first hologram element (Fig. 1, element 2c) which transmits the first beam so that the first beam proceeds to the beam splitter, and diffracts the reflected first beam so that the diffracted light proceeds to the first photodetector (Paragraph [0016]).

In regards to claim 7, Mogi et al discloses the compatible optical pickup apparatus of claim 1, further comprising first and second collimating lenses (Fig 1, elements 4 and 7) which are respectively disposed on an optical path between the first light module (Fig. 1 element 2) and the beam splitter (Fig. 1, element 13) and an optical path between the second light module and the beam splitter (Fig. 1, element 3).

In regards to claims 13 and 21, Mogi et al discloses the compatible optical pickup apparatus of claim 1, wherein optical output of the first and second light modules is controlled by a controller based on the received portions of the first and second beams (abstract, lines 12-15).

In regards to claim 19, Mogi et al discloses the optical pickup of claim 18, wherein the first and second optical recording media use different formats (Paragraph [0013]).

In regards to claim 20, Mogi et al discloses the optical pickup of claim 18, wherein the monitoring photodetector opposes the beam splitter (Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mogi et al in view of Lee (US Patent number 6611383).

In regards to claim 3, Mogi discloses everything claimed as applied above (see claim 2). However, Mogi fails to disclose wherein the second light module comprises: a second light source which emits the second beam; a second photodetector which receives the second beam reflected from the second optical recording medium and passed through the beam splitter to detect an information signal and an error signal; and a second hologram element which transmits the second beam so that the second beam proceeds to the beam splitter, and diffracts the reflected second beam so that the diffracted light proceeds the second photodetector.

In the same field of endeavor, Lee discloses wherein the second light module (Fig. 8, element 11) comprises: a second light source which emits the second beam (Fig. 8); a second photodetector which receives the second beam reflected from the second optical recording medium and passed through the beam splitter to detect an

Art Unit: 2627

information signal and an error signal (Column 4, lines 31-35); and a second hologram element which transmits the second beam so that the second beam proceeds to the beam splitter, and diffracts the reflected second beam so that the diffracted light proceeds the second photodetector (Column 3, lines 48-50). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the optical pickup apparatus of Mogi et al to have 2 light modules with a hologram element as taught by Lee. The motivation for doing so would have been to create a smaller, more compact optical pickup apparatus.

In regards to claim 4, Mogi et al does not but Lee discloses wherein the beam splitter is one of a plate beam splitter with two parallel surfaces (Fig. 8, element 12a-b) and a wedge beam splitter with two oblique surfaces (Column 4, lines 6-8). At the time of the invention it would have been obvious to modify the optical pickup apparatus of Mogi et al with a wedge beam splitter as suggested by Lee. The motivation for doing so would have been to lower the cost, manufacturing process and astigmatic aberration (Column 1, lines 44-46 and lines 66-7; Column 2, lines 1-6).

In regards to claim 5, Mogi et al does not but Lee discloses the compatible optical pickup apparatus of claim 4, wherein the beam splitter is a wedge beam splitter having an incident surface which is inclined at an angle of θ_1 to an optical axis of the first beam to transmit the first beam, and an emitting-reflecting surface which is inclined at an angle of θ_2 to the incident surface to transmit the first beam and reflect the second

Art Unit: 2627

beam, wherein $0.\text{degree} \leq \theta_2 \leq 5\text{degree}$ (Column 4, lines 36-44; 1.3 degree is within the range of 0-5 degree). The motivation for doing so would have been to create a normal operation of light path within the wave front error (Column 1, lines 53-58).

In regards to claim 6, Mogi et al discloses, wherein the beam splitter is a plate (wedge) beam splitter having an emitting-reflecting surface coated by a coating which causes the emitting-reflecting surface to one of transmit or reflect incident light based on wavelength (Fig. 1, element AR and HM), and wherein the emitting-reflecting surface transmits the first beam and reflects the second beam according to the first wavelength and the second wavelength, respectively (Paragraph [0027]).

In regards to claim 8, Mogi et al does not but Lee discloses, wherein a cross-sectional area of the light transmitted by the beam splitter is adjustable by varying a distance between the first and second light modules and the first and second collimating lenses, respectively (Column 4, lines 45-53; Fig. 8-9 shows that more configurations can be added between the light and the beam splitter adjusting the distance of an optical pickup). The motivation is the same as claim 5 above.

5. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mogi et al in view of Noguchi et al (US Patent Number 5309423).

In regards to claim 9, Mogi et al discloses the compatible optical pickup apparatus of claim 1, further comprising a first mirror disposed on an optical path between the first

Art Unit: 2627

light module and the beam splitter, which reflects the first beam emitted from the first light module so that the path of the first beam is changed (Fig. 1, element 6). However, Mogi et al fails to disclose the phase of the first beam is shifted. In the same field of endeavor, Noguchi et al discloses the phase of the beam is shifted (Column 1, lines 20-25; it is obvious that the mirror generate a phase difference). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the Mogi et al first mirror to be coated for a phase shift of the beam as taught by Noguchi et al. The motivation for doing so would have been to maintain the correct beam polarization for a correct reading.

In regards to claims 10 and 12, Mogi et al does not but Noguchi et al discloses the first mirror is coated with a coating which shifts the phase of the first beam so as to invert a polarization of the first beam (Column 1, lines 20-25). The motivation is the same as claim 9 above.

In regards to claim 11, Mogi et al discloses the compatible optical pickup apparatus of claim 1, further comprising a second mirror (Fig. 1 element 14) disposed on an optical path between the beam splitter and the objective lens (Fig. 1 and 2) which and reflects the first and second beams emitted from the first and second light modules (Fig. 1) so that the paths of the first and second beams are changed (Fig. 2). However, Mogi et al fails to disclose the phases of the first and second beams are shifted.

In the same field of endeavor, Noguchi et al discloses that it well known in the art that the mirror are cable to shift the phases of the first and second beams (Column 1, lines 20-25). The motivation is the same as claim 9 above.

6. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mogi et al in view of Ichimura et al (US Publication number 20050163033).

In regards to claim 14, Mogi et al discloses the compatible optical pickup apparatus of claim 1, wherein the beam splitter which transmits most of the first beam emitted from the first light module so that most of the first beam proceeds to the objective lens (Paragraph [0038]), and reflects most of the second beam emitted from the second light module so that most of the second beam proceeds to the objective lens (Paragraph [0047]). However, Mogi et al fails to disclose wherein the beam splitter is a cubic beam splitter. In the same field of endeavor, Ichimura et al discloses a cubic beam splitter (Fig. 14, element 20). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Mogi et al flat beam splitter of the optical pickup with a cubic beam splitter of Ichimura et al. The motivation for doing so would have been to align with the incident light beam.

In regards to claim 15, Mogi et al does not but Ichimura et al discloses a half-wavelength plate (Fig. 14, element 18) disposed on one of an optical path between the first light module (Fig. 14,element 16) and the beam splitter (Fig. 14,element 20) and an

optical path between the second light module and the beam splitter (Fig. 14, element 22) and which delays a phase of incident light to change the polarization of the incident light (It is obvious that the function of a half wavelength change the polarization of the light).

In regards to claim 16, Mogi et al does not but Ichimura et al discloses the comprising a relay lens (Fig. 14, element 17) disposed on one of an optical path between the first light module (Fig. 14, element 16) and the beam splitter (Fig. 14, element 20) and an optical path between the second light module and the beam splitter and which changes a divergent angle of incident light (Fig. 14).

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mogi et al in view of Ichimura et al as applied to claim 14 above, and further in view of Arai et al (US Patent number 6870805).

In regards to claim 17, Mogi and Ichimura et al does not but Arai et al discloses a collimating lens (Fig. 67, element 2) disposed on an optical path between the beam splitter (Fig. 67, element 6) and the objective lens (Fig. 67, element 1) which condenses divergent light incident from the first and second light modules to convert the divergent light into parallel light (Fig. 67). At the time of the invention it would have been obvious to person of ordinary skill in the art to modify Mogi and Ichimura et al optical pickup to have a collimating lens between the objective lens and beam splitter as taught by Arai

Art Unit: 2627

et al. The motivation for doing so would have been to create a parallel lights passing through the objective lens.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh T. Nguyen whose telephone number is 571-272-5513. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
October 2, 2006


ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER